

**Notice of Allowability**

Application No.

10/533,181

Examiner

M. R. Sedighian

Applicant(s)

MIZUMA ET AL.

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/28/05.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 4/28/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

  
M. R. SEDIGHIAN  
PRIMARY EXAMINER

1. The following is an examiner's statement of reasons for allowance:

As to claims 1-4, the prior art of Sasai et al. (US Patent Application Publication No: 2002/0012495 A1), Ogusu (US Patent No: 6,674,969), and Hietala et al. (US Patent No: 5,333,000) does not fairly teach or suggest an optical control type phased array antenna, comprising: laser generating means for generating a light having a single wavelength; optical path branching means for branching the emitted light from the laser generating means into first and second transmission lights; high frequency signal generating means for generating a high frequency signal; optical frequency modulating means for shifting a frequency of the first transmission light obtained through the branching by the optical path branching means by a frequency of the generated high frequency signal; spatial light phase modulating means for carrying out spatial phase modulation corresponding to an antenna beam pattern for the first transmission light having the frequency shifted by the frequency of the generated high frequency signal; optical path branching/multiplexing means for multiplexing the first transmission light subjected to the phase modulation and the second transmission light obtained through the branching by the optical path branching means; aperture dividing/light collecting means for dividing one transmission light obtained through the branching of the transmission light obtained through the multiplexing by the optical path branching/multiplexing means into a plurality of transmission lights; a plurality of optoelectronic converting means for converting light intensities of the plurality of pairs of transmission lights into electrical signals, respectively; and a plurality of element antennas for radiating the electrical signals from the plurality of optoelectronic converting means as beams, respectively, wherein optical path lengths of two paths between the optical path branching means and the optical path branching/multiplexing means are equalized.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sasai et al. (US Patent Application Publication No: 2002/0012495 A1) is cited to show an optical transmission system (100, fig. 4) that is comprised of an electrical to optical converter (130, fig. 4), an external modulator (150, fig. 4), local oscillation signal source (140, fig. 4), an optical branching portion (160, fig. 4), an optical to electrical converter (211, fig. 4), and an antenna (231, fig. 4).

Ogusu (US Patent No: 6,674,969) is cited to show an optical transmission system (101d, fig. 5) that is comprised of a laser light source (21, fig. 5), an external modulator (25, fig. 5), a reference signal generator (30, fig. 5), optical coupling means (63, 5, 11, fig. 5), a photoelectric converter means (12, fig. 5), a radio transmitter (14, fig. 5), and an antenna (15, fig. 5).

Hietala et al. (US Patent No: 5,333,000) is cited to show an optical phased array antenna system (10, fig. 1) that is comprised of an optical frequency translator (20, fig. 1), an optical phase controller (22, fig. 1), optical combining/branching means (combining/branching means connected to optical fiber 28, fig. 1), T/R modules (30, fig. 1), and antenna means (32, fig. 1).

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3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
M. R. SEDIGHIAN  
PRIMARY EXAMINER